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Short-term effects of stream and riparian restoration on wildlife

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Restoration of riparian zones, as part of stream restoration, can improve water quality and aquatic life by decreasing nutrient and sediment loads into streams. Although in-stream monitoring is often a focus for evaluating restoration success, fewer studies have emphasized potential short-term impacts of the disturbance on riparian wildlife. We monitored riparian wildlife responses during a natural stream channel design restoration project along a 1,100 m restoration reach (RR) of the Cacapon River, West Virginia, USA. Reference (RS) and control (CS) sites were located upstream and downstream of the RR. Small mammal trapping, bird counts, frog call surveys, and vegetation surveys were conducted pre- and post-restoration. We observed six species of small mammals, 79 species of birds, eight species of anurans, and 96 species of plants. Small mammal abundance was higher in CS than RR post-impact. Small mammal richness, diversity, or evenness did not differ between sites or time periods. Overall bird abundance, richness, and diversity were higher in the RR compared to CS post-impact. No effect on passerine diversity metrics, the abundances of each of the five most common bird species, or anuran richness was observed. Vegetative diversity metrics tended to be higher in the RS compared to the CS or RR for native species. Community composition of both plants and wildlife exhibited minor variations between pre- to post- monitoring. Riparian restoration does influence riparian wildlife, but overall there were few negative effects and we anticipate observing increasing riparian biodiversity as post-restoration time length increases and the riparian zone matures.

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